



CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005



Job No.: CTCE/BBMP/W.No.14/KRIDL/SDBC/Bit/2014-15

16.03.2016

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-11-1984

CLIENT	Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Technical Manager (West), KRIDL, Bangalore.
NAME OF THE WORK	Asphalting to cross and main roads at Abbigeri Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.
REFERENCE	AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016
SAMPLE I/D	Roads in abbigeri, Karikallu area Ward No.12
DATE OF TESTING	16.03.2016

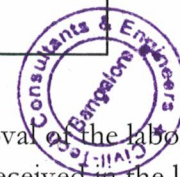


BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	5.10	

Note:

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ನಿರ್ದೇಶಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶಿಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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16.03.2016

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	Technical Manager (West), KRIDL, Bangalore.
NAME OF THE WORK	Asphalting to cross and main roads at Abbigeri Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.
REFERENCE	AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016
SAMPLE I/D	Roads in abbigeri, Karikallu area Ward No.12
DATE OF TESTING	16.03.2016



GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	24.35	5.13	5.13	94.87	90-100
4.75	255.6	53.81	58.94	41.06	35-51
2.36	53.13	11.19	70.12	29.88	24-39
1.18	34.21	7.20	77.32	22.68	15-30
0.3	35.16	7.40	84.73	15.27	9-19
0.075	38.59	8.12	92.85	7.15	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	30.22	6.38	6.38	93.62	90-100
4.75	255.6	53.92	60.30	39.70	35-51
2.36	53.13	11.21	71.51	28.49	24-39
1.18	36.21	7.64	79.15	20.85	15-30
0.3	35.21	7.43	86.58	13.42	9-19
0.075	35.16	7.42	93.99	6.01	3-8

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ನಿರ್ದೇಶಕರು ಕಾರ್ಯದರ್ಶಿ ಅಭಿಯಂತರರು

ಶಿಬ್ಬಕಟ್ಟೆ ಉಪವಿಭಾಗ, ದಾಖಲಾತಿ

ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು



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Job No.: CTCE/W.No.12/KRIDL/CSR-03/1096k/QB/2015-16

16.03.2016

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
*AGENCY	:	Technical Manager (West), KRIDL, Bangalore.
*NAME OF THE WORK	:	Asphalting to cross and main roads at Abbigere Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.
*REFERENCE	:	AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016
SAMPLE ID	:	Bitumen
SAMPLE RECEIVED ON	:	14.03.2016
DATE OF TESTING	:	16.03.2016



The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	IS :1203 -1978 (RA-2009)	64	60 to 70
2	Softening point, °C	IS :1205 -1978 (RA-2009)	47	Min. 45
3	Ductility at 27°C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, °C	IS :1209 -1978 (RA-2009)	296	Min. 220

*Information is furnished by the Customer/Representative.

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VIDYARANI P.K.
Technical Manager



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ನವಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/Gradation/2015-16

18.02.2016

GRADATION FOR WMM MORTH TABLE-400-11

Client : Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.

Agency : Technical Manager (West), KRIDL, Bangalore.

Name of Work : Asphaltting to cross and main roads at Abbigeri Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.

Reference : AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016

Date of Testing : 18.02.2016

Material : WMM

Sample Location : WMM Mix Plant

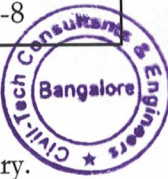
Oven Dry Wt (gm): 8440



Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	185	185	2.2	97.8	95-100
22.4	2650	2835	33.6	66.4	60-80
11.2	1525	4360	51.7	48.3	40-60
4.75	1050	5410	64.1	35.9	25-40
2.36	980	6390	75.7	24.3	15-30
0.600	900	7290	86.4	13.6	8-22
0.075	650	7940	94.1	5.9	0-8

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Job No.: CTCE/BBMP/W.No.12/KRIDL/GSB-1/AL/2015-16

Date : 12.02.2016

ATTERBERG LIMITS TEST FOR GSB (CLOSE GRADED)

IS : 2720 (Part - 5)

Client : Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.

Agency : Technical Manager (West), KRIDL, Bangalore.

Name of work : Asphaltting to cross and main roads at Abbigere Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.

Reference : AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016

Date of Testing : 12.02.2016

As per MORTH Table : 400-11



Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	23.00	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.



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Date : 12.02.2016

GRADATION FOR GSB-I (CLOSE GRADED)

IS: 2720 (Part 4)

Client : Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.

Agency : Technical Manager (West), KRIDL, Bangalore.

Name of work : Asphaltting to cross and main roads at Abbigere Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.

Reference : AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016

Date of Testing : 12.02.2016



Sample Source : GSB Mix Plant Bangalore.

Oven Dry Wt (gm) : 8610

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	100	100
53.0	185	185	2.15	97.85	80-100
26.50	2550	2735	31.77	68.23	55-90
9.50	1290	4025	46.75	53.25	35-65
4.75	1020	5045	58.59	41.41	25-55
2.36	985	6030	70.03	29.97	20-40
0.425	980	7010	81.42	18.58	10-25
0.075	900	7910	91.87	8.13	3-10
PAN	700				
Total	8610				



Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

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18.02.2016

Aggregate Impact Value IS: 2386 Part IV

Client	Asst. Executive Engineer, Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	Technical Manager (West), KRIDL, Bangalore.
Name of the Work	Asphalting to cross and main roads at Abbigeri Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.
Reference	AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	18.02.2016



Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	392	398	21.15
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	82	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	310	315	
4	Aggregate Impact value = percent fines	20.92	20.85	
	$100 * (W_2/W_1)\%$			21.15

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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18.02.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.		
Agency	Technical Manager (West), KRIDL, Bangalore.		
Name of Work	Asphalting to cross and main roads at Abbigere Karikallu area in ward No.12 of Shettyhalli Sub division, BBMP, Bangalore.		
Reference	AEE/SSD/PR/QC/163/2015-16 dated: 10.02.2016		
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)		
Type of Mix	Wet Mix Macadam		
Date of Testing	18.02.2016		

Result : Flakiness Index = **11.05%**

Elongation Index = **13.28%**

Result : Combined Flakiness & Elongation index 24.33%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%.

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